Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

West Fork Sni-A-Bar Creek

Waterbody Segment at a Glance:


State map showing location of watershed

County: Jackson
Nearby Cities: Blue Springs
Length of impairment: 2 miles
Pollutants: Biochemical Oxygen Demand (BOD)
Volatile Suspended Solids (VSS)
Source: Lake Lotawana Lagoon

Note: The current assessment of this stream is 2.5 miles impaired by BOD, based on a water quality survey conducted after the development of the 2002 303(d) List.

TMDL Priority Ranking: High

Description of the Problem

Beneficial uses of West Fork Sni-A-Bar Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

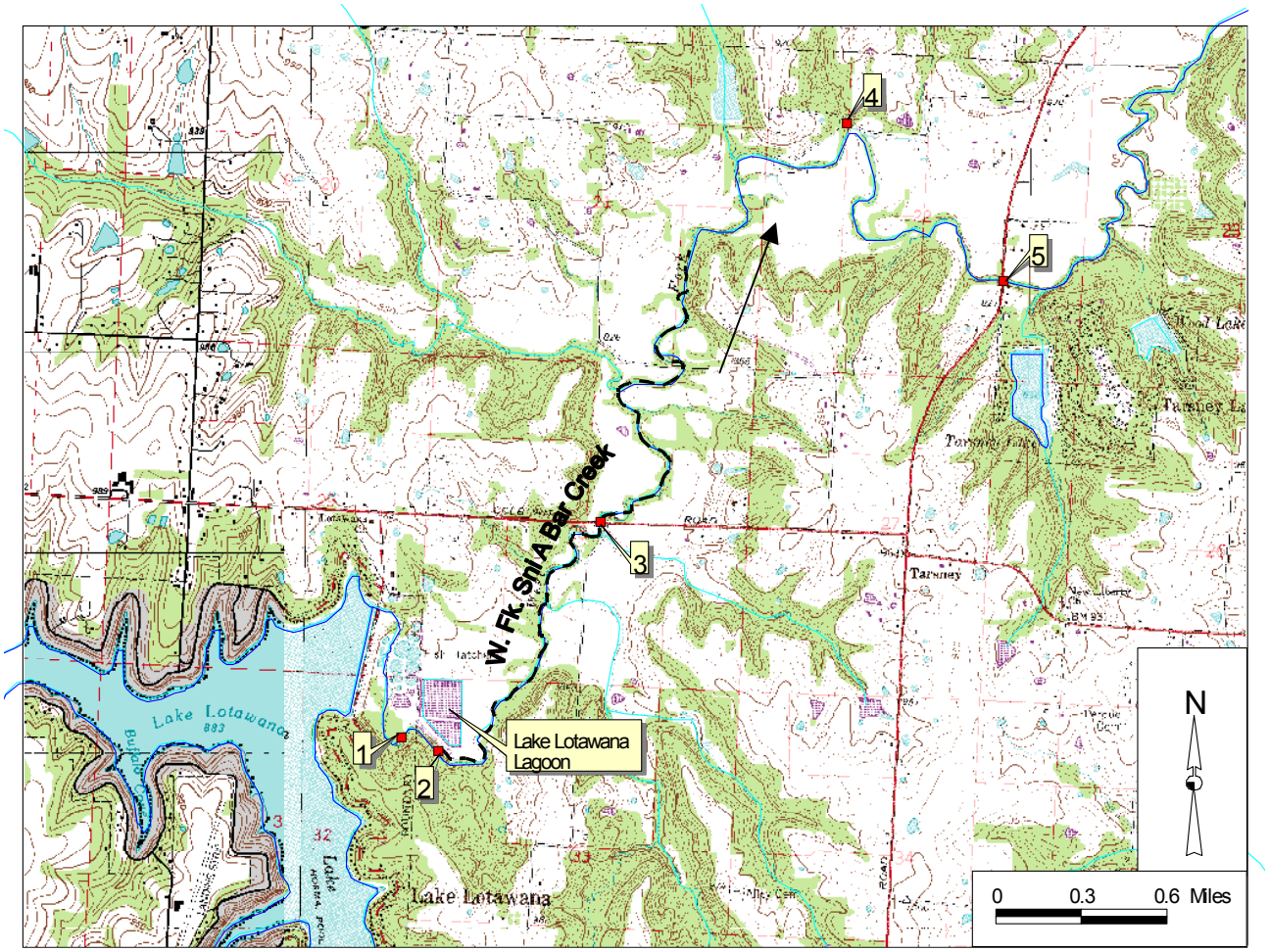
Standards that apply

- The Missouri Water Quality Standard, found in 10 CSR 20-7.031 Table A, for dissolved oxygen (related to BOD) in streams is 5.0 milligrams per liter (mg/L) or parts per million.
- Standards for Volatile Suspended Solids (VSS) is found in the general criteria section of the WQS, 10 CSR 20-7.031(3)(A) and (C) where it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

Any waterbody that was listed for Non-filterable Residue (NFR) in 1998, such as West Fork Sni-A-Bar Creek, is now being listed for Volatile Suspended Solids (VSS). This change was made to

better distinguish between organic solids coming from wastewater treatment plants (VSS) and mineral solids (soil or mineral particles) coming from soil erosion or erosion of mine waste materials or stockpiles (Non-Volatile Suspended Solids or NVSS).

Impaired Segment of West Fork Sni-A-Bar Creek in Jackson County, Missouri, with Sampling Sites



Impaired segment → Direction of flow

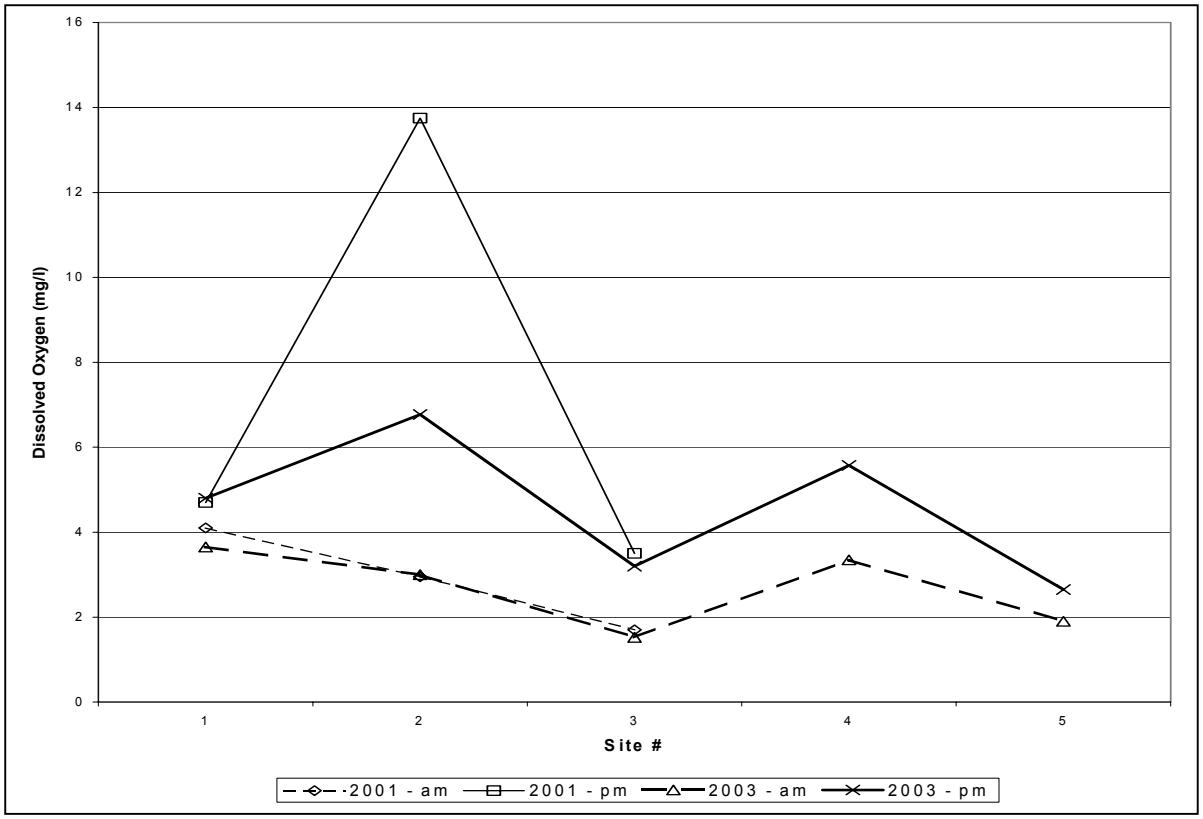
Sampling Site Index

1 – W. Fk. Sni-A-Bar 0.1 mile upstream of Lake Lotawana Lagoon
2 – Lake Lotawana Lagoon Outfall
3 – W. Fk. Sni-A-Bar 1.1 miles downstream of Lake Lotawana Lagoon
4 – W. Fk. Sni-A-Bar 3.2 miles downstream of Lake Lotawana Lagoon
5 – W. Fk. Sni-A-Bar 4.4 miles downstream of Lake Lotawana Lagoon

Background Information and Water Quality Data

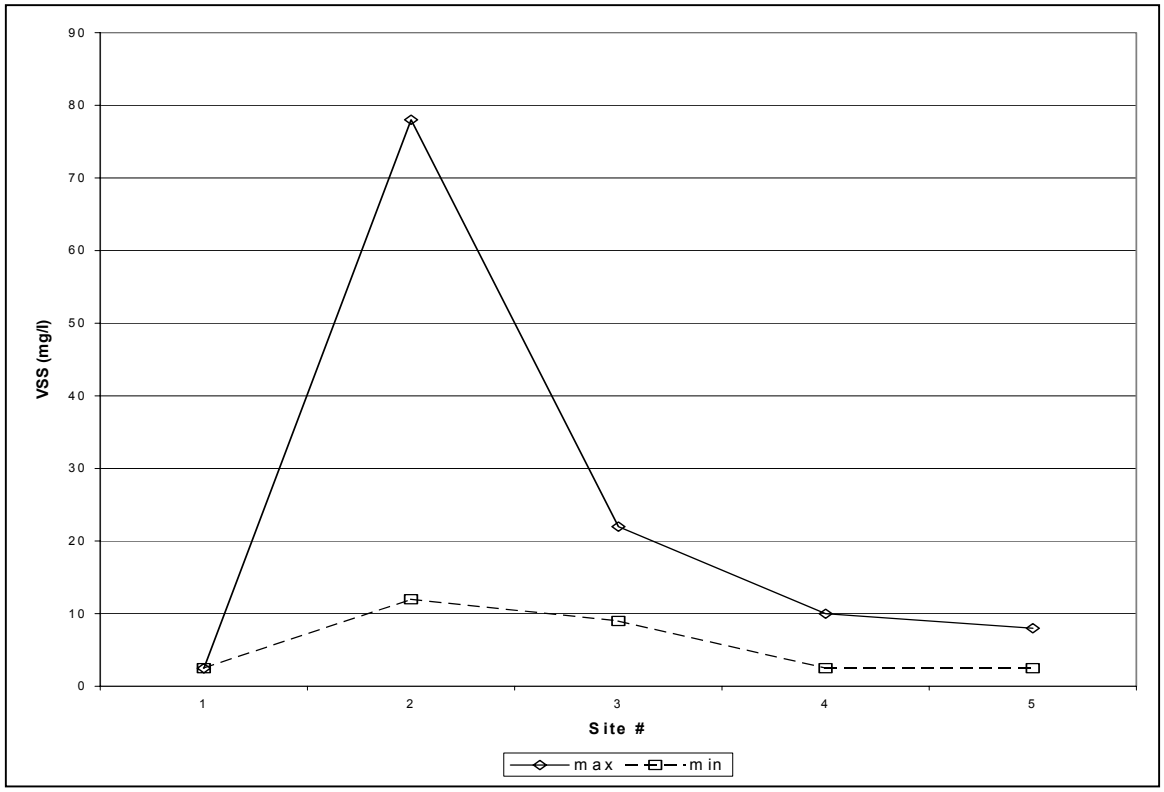
A 48-hour Water Quality Study in 2001 showed low levels of dissolved oxygen in West Fork Sni-A-Bar Creek downstream from the Lake Lotawana Lagoon. Dissolved oxygen in the creek is reduced by wastewater high in Biochemical Oxygen Demand (BOD), and most aquatic organisms require high levels of oxygen to survive. There is also an accumulation of objectionable solids (VSS) in the same stretch of the creek. Aquatic invertebrate animals and fish eggs are smothered when these solids settle onto the bottom of a stream. Like all wastewater discharges in Missouri, this lagoon has to meet the requirements of a discharge permit issued by Missouri Department of Natural Resources. Another Water Quality Study was conducted in July 2003 to assist in determining appropriate permit limits. A Waste Load Allocation (WLA) will be calculated for the Lake Lotawana lagoon that will give the scientific basis for setting those limits. Another set of data is needed to complete the WLA and will be collected in the summer of 2004.

Figure 1. Dissolved Oxygen in West Fork Sni-A-Bar Creek from stream surveys in August 2001 and July 2003



Note: Since DO levels are higher in the afternoon, the morning measurements are used in the Waste Load Allocation. This is because they offer the greater level of water quality protection in the creek.

Figure 2: Volatile Suspended Solids in West Fork Sni-A-Bar from a stream survey in July, 2003



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